



KARO ECHO Newsletter

KARO ECHO

Serving the communities
of El Cerrito and
Kensington, California

Web: www.karoecho.net

Facebook:
[KARO ECHO facebook](#)

Email: info@karoecho.net

Important Frequencies

KE Primary: 146.415 MHz
Weekly Net, Thurs. 1900

KE Secondary: 146.475 MHz

4Cs Repeater: 145.110 MHz
(TX down 600 with PL 82.5)

Monthly Meetings

In-person meetings

2nd Monday of each month
7:00 pm

(online via Zoom for now)

Arlington Park Clubhouse,
1120 Arlington Blvd,
El Cerrito, CA

The next meetings are:

May 10th, 2021

June 14th, 2021

Meeting minutes are on
the website in the past
events page.

What's New

KARO ECHO Monthly Meeting, May 10th, 1900 — **ONLINE VIA ZOOM**

The monthly KARO ECHO meeting will be held using the Zoom online meeting app, at the usual time, 1900, Monday May 10th. Look for the link to join in a KARO ECHO email from Howdy KE6BEE. The training session will cover a brief overview of band plans and frequency sharing/efficiency. Also, we will have a discussion of the measurement tool article at the end of this newsletter regarding Volt/Ohm meters, SWR/power meters, and dummy loads. We will also discuss establishment of a predetermined schedule of weekly net exercises. [Full agenda link](#)

Tools for Maintenance and Diagnostics of your Radio Gear

Be sure to read the article contributed by Don NI6A and Howdy KE6BEE at the end of this newsletter regarding important tools for keeping your communication gear operating optimally. Regular use and participation in nets is a good start to assure equipment (as well as operational) readiness, but there are subtle changes in equipment performance, that might not immediately raise attention, but could get abruptly worse at a bad time. A practice of regular diagnostic testing of your equipment can greatly improve your state of readiness and optimize your communication performance. There will be further discussion of this topic at the Monday May 10th member meeting.



Review of Net Control Operations

Following the April SET and the related discussions and exercises after that SET, Natalie KM6UCF pointed out a very good [summary of net control operations](#) that she documented during earlier SET training and debriefs led by Don NI6A. Howdy KE6BEE added some material and members are encouraged to review this information. Please let Howdy know if you have additional content or changes, and we can further update and improve this document.

LOCAL NETS**KARO ECHO NET**

146.415 MHz Simplex

Thursday eve, immediately after the West Contra Costa RACES Net, but never before 1900 hours local time.

West Contra County ACS/RACES Net

145.110 MHz repeater

(TX down 600 with PL 82.5)

Thursday: 1845 local time

Contra Costa County HF EmComm/RACES Net

3893 KHz

Thursday: 1835 local time

American Red Cross of the Bay Area (ARCBA)

WW6BAY Repeater

443.975 MHz

TX +5 MHz, PL 100 Hz

Wednesday: 2000 local time

BOARD OFFICERS

President: Hal KK6NDF

Vice-Pres.: Howdy KE6BEE

Treasurer: Larry KK6GIO

Secretary: Tom KN6BUY

Outreach Manager:

Annette, KJ6SWK

Emergency Coordinator:

Howdy KE6BEE

(also newsletter editor and net coordinator)

Webmaestro: Rob K6RJM

What's New *(continued)***Neighborhood nets and Communication Hub Activities**

The first Wednesday of the month has a lot of radio activity in the area.

West county EmComm net out of Richmond at 11 am (starts after the Richmond siren test) FRS/GRMS simplex (on Ch.19, secondary Ch. 17), followed by a ham net on the [WA6KQB 440 repeater](#) with WA6DUR repeater as secondary (see WA6DUR freq. information below)

East Richmond Heights, ham operators check-in at 1845 on Walt's WA6DUR repeater 442.150 +5 offset and PL tone 107.2Hz.

EC4 (central El Cerrito Hills) CERT Net, Ch. 2 simplex (462.5875), at 1845

EC9 (north El Cerrito Hills) CERT Net, Ch. 15 simplex (462.550), at 1900

East Richmond Heights, Ready-2-React Net, Ch. 7 simplex (462.7125), at 1930

EC8 (north El Cerrito) CERT net, Ch.1 simplex (462.5625), at 2000

Richmond simulated EOC net, first Thursdays at 1030, on three simplex frequencies in this order: 147.450, 441.000, 223.400

Albany Radio Net, Wed. (weekly) 1900 on Ch.19 [Albany Radio groups.io](#)

[Coordination of neighborhood FRS/GMRS frequencies can be found here.](#)

New Club Callsign

In February, KARO ECHO was issued the sequential club call KN6NMN. This call is unfortunately awkward (both with and without use of phonetics). On March 27, 2021 the club was issued a replacement vanity call W6ECK (a classic 1x3 W-series call evocative of El Cerrito—Kensington). Howdy KE6BEE is the trustee for the club call.

Welcome New Hams

New El Cerrito licenses issued: [KN6QJW](#)

New Kensington licenses issued: none in past month

Action - Contribute to this Newsletter

Content for this newsletter is always welcome. We are seeking submissions for a new free classified section for selling/trading radio equipment/services. Anyone with events or other content suggestions please send them to the newsletter editor Howdy KE6BEE ke6bee@arrl.net

What's New *(continued)*

Recording available of FEMA communication hub webinar

If you didn't attend the FEMA webinar on community based emergency communications hubs on March 17th, [a recording is available at this link](#) (as well as other FEMA presentation recordings). The Seattle Emergency Communications Hubs will talk about how they establish locations and organize volunteers to lead those efforts at the ground level while the larger first responder and government activities get underway.

Comm. Academy 2021 archives/recordings

The Comm. Academy Conference, just took place with 2 days of training, talks and information out of Seattle, WA. There are [archived recordings on Youtube](#) and other [documents on their website](#).

Club affiliation with ARRL

Thanks to the work of Frans KJ6IUV with help from Treasury Larry KK6GIO and Don NI6A, we have determined that KARO ECHO has the required number of ARRL and KARO ECHO members and our application for ARRL club affiliation is being processed. There are many benefits for an ARRL affiliated club, including recruitment tools, PR, additional funding (commissions), etc.

[ARRL affiliated club general description](#)

[Resources](#)

[Benefits](#)

[How to apply](#)

[Club Kit \(PDF\)](#)

Commission Terms:

ARRL Affiliated Clubs receive a commission for every new ARRL membership and renewal they submit to ARRL Headquarters. Clubs retain a portion of the dues for each regular membership submitted to ARRL Headquarters (clubs retain \$15 for each new membership OR lapsed membership of two years or more). A new member is defined as any individual who has never been a member of ARRL or any individual who has not retained a membership for two or more calendar years prior to the application submission. Clubs retain \$2 for each renewal. A renewing member can renew at anytime, even before their current membership term expires.

Treasurer's Report

[Treasurer's Report April 2021](#)

Larry Vanselow, KK6GIO, Treasurer

MARCH GENERAL FUND1 Beginning Balance \$968.63

Income: December dues payments: KK6UQX, KN6CMP, KN6CMR, and KN6ELO.

Total General Income: \$100.00

Total General Disbursements \$0.00

Ending Balance \$1068.63

Activities

Weekly Net Control Rotation

Thanks go out to the volunteer stations who have been taking turns as Net Control Stations (NCS) each Thursday. This rotation has been working very well and everyone has been doing a great job. The regular NCS roster has 9 operators. We have one opening as an opportunity for others to fill in. Please volunteer to give it a try. [Download the new Net Script for NCS operators.](#)

Below are the current scheduled dates for each operator. The [KARO ECHO google calendar](#) also has these assignments and can be found at the bottom of the events page. Add to your electronic calendar By pressing the "+GoogleCalendar" button in the lower right.

Net control is a skill that many operators should have and regularly practice. Please contact Howdy ke6bee@arrl.net if you are interested in taking a net control assignment.

Callsign	Name	Assigned Dates (skipped: 11/26/2020, 11/25/2021, 12/24/2020, 12/31/2020)						
KE6BEE	Howdy Goudey	9/17/2020	11/19/2020	2/11/2021	4/15/2021	6/17/2021	8/19/2021	10/21/2021
KK6NDF	Hal Graboske	9/24/2020	12/3/2020	2/18/2021	4/22/2021	6/24/2021	8/26/2021	10/28/2021
KM6HBO	Jamuel Starkey	10/1/2020	12/10/2020	2/25/2021	4/29/2021	7/1/2021	9/2/2021	11/4/2021
	Open	10/8/2020	12/17/2020	3/4/2021	5/6/2021	7/8/2021	9/9/2021	11/11/2021
K6RJM	Rob McNicholas	10/15/202	1/7/2021	3/11/2021	5/13/2021	7/15/2021	9/16/2021	11/18/2021
KE6HCE	Armando Picciotto	10/22/202	1/14/2021	3/18/2021	5/20/2021	7/22/2021	9/23/2021	12/2/2021
NI6A	Don Simon	10/29/202	1/21/2021	3/25/2021	5/27/2021	7/29/2021	9/30/2021	12/9/2021
KN6CMR	Susan Yeaman	11/5/2020	1/28/2021	4/1/2021	6/3/2021	8/5/2021	10/7/2021	12/16/2021
KK6ZPM	Karen Fenton-Leong	11/12/202	2/4/2021	4/8/2021	6/10/2021	8/12/2021	10/14/2021	12/23/2021

Thursday Net Training Exercises

Following the net check-ins every Thursday at 1900 on 146.415, KARO ECHO usually runs a training exercise to learn and practice skills that are important for successful disaster communications.

[A list of potential training exercises](#) is posted and maintained on the training page of the website.

[A log of our check-in counts can be found here.](#) Howdy KE6BEE typically updates this document in real time during the net, so you can check it against your log during or after the net.

We averaged 21 check-ins/week in 2020 with a high of 28. So far in 2021, we are averaging 20/week with a high of 25. Thanks for your participation. Keep it up!

Thanks to David KN6BVF for taking net control a couple of times recently to fill the open slot in the rotation.

About KARO ECHO

KARO ECHO is the name of the Kensington Amateur Radio Operators and the El Cerrito Ham Operators mutual benefit association, an all-volunteer non-profit group of amateur radio operators providing auxiliary communications for the cities of Kensington and El Cerrito in the event of a disaster. KARO ECHO works with CERT (Community Emergency Response Teams) in Kensington and El Cerrito, but is not an official part of the CERT program.

Monthly in-person meetings of KARO ECHO are on the 2nd Monday of each month at 7:00 pm, online using Zoom. The next meetings are:

- ♦ May 10th, 2021
- ♦ June 14th, 2021

Yearly membership dues are \$30/year for individuals, \$40/year for a family membership. Payments can be given to the Treasurer at monthly meetings or mailed to the address below. Participation is welcome independent of paid membership, but only licensed amateur radio operators who are dues paying KARO ECHO members will be allowed to vote on KARO ECHO business. Dues cover our 510c3 registration, post office box, web page, station operating manuals and more. Your input on useful expenditures to aid emergency communications is welcome.

Mail to: KARO ECHO, PO Box 2025, 6324 Fairmont Ave, El Cerrito, CA 94530-3651

Please see our website for more information: www.karoecho.net

You can contact the KARO ECHO board by email: info@karoecho.net

KARO ECHO Facebook

The [KARO ECHO Group on Facebook](#) has a lot of good information, more than is contained on our website. There is a whole wide world of emergency communications information at <https://www.facebook.com/groups/1451216838315743/> Check it out and be inspired of what we can do to help disaster victims in our community.

Weekly Training Net

The Karo-Echo Weekly Training Net meets every Thursday evening immediately after the West Co Co County RACES/ACS Net; but not before 1900 on 146.415 MHz Simplex. Details at <https://www.karoecho.net/events>

KARO-ECHO Frequencies

The KARO ECHO primary frequency is 146.415 MHz simplex. Our secondary frequency is 146.475 MHz simplex, a 60 KHz spread between operating frequencies reduces adjacent frequency interference.

Newsletter Content Wanted

Any input on content you'd like to propose for inclusion in the KARO ECHO newsletter can be sent to Howdy ke6bee@arrl.net We welcome all ideas for content including announcements, events, etc.

Outreach, Education and Licensing

Write-up of message handling exercise

There is a [writeup of a recent messaging exercise](#) on the KARO ECHO website that covers prowords and fills and other guidance for operators when passing written messages.

Local and Online Ham License Classes and Exams

COVID restrictions have changed ham license classes and exams. Many are now offered in distanced/outdoor venues or entirely online. See a [list of opportunities on the KARO ECHO website](#)

Recruiting Additional Communications Coordinators

Read the [Neighborhood District Radio Communications Coordinator \(DRCC\) plan](#) written by Don NI6A.

Training for Beginning Operators

Thanks to Jay KJ6WSS, Edward KM6UBY and Karen KK6ZPM for their May 23rd introductory radio class, with emphasis on the GMRS radio BTECH-V1. [A recording of the class and other resources are available here.](#)

Net Control Operator Training

Diane KK6RED, David KJ6AAT and Howdy KE6BEE taught an Apr 4th net control class for C8 the county wide CERT organization. There was a great reception to this class across the county and we inspired many groups to expand the scope of their net trainings. [The class recording is available here.](#)

EMCOMM related videos

See the CERT SET Youtube video link

<https://www.youtube.com/watch?v=66DdgGLIn4c&list=PLROOaUIKdrEgSID1bQJZojW3PzfURoEY-&index=144&t=0s>

Post Camp Fire GMRS organization

https://www.youtube.com/watch?time_continue=220&v=aZiSC4sgKYw&feature=emb_logo

ELMERING

An online elmering forum can be accessed by emailing elmer@karoecho.net or browsing the associated google group. More in-depth elmering/mentoring is available by request.

In the meanwhile, please check out the plethora of useful information at <https://www.karoecho.net> website.

Encouragement to Monitor 146.415 and Explore Other Nets

During the current shelter in place, with time spent at home, it is a good opportunity to use your radio and monitor 146.415 (call out for others occasionally and make some casual contacts). There are a lot of other nets around the bay area that you can reach. Expand your radio horizons. See the [KARO ECHO Coordination page](#) for a listing of some other nets to explore. You can just listen at first, or program your radio (if a repeater is used) and try transmitting as a guest check-in to see if you can make contact.

KAROECHO.Net Website

Especially, check out the EVENTS Page (<https://www.karoecho.net/events>) and the WORKSTREAMS drop-down menu which will lead one to an extensive training page that provides online learning at your own pace. Everything from the very beginning to advanced EmComm operations is detailed. The RESOURCE page has many excellent outside links.

- ◆ This [new heading on the Events page](#) will be updated with recent additions to the website.
- ◆ If you are on Facebook, contribute to the KARO ECHO Facebook Group Page at <https://www.facebook.com/groups/1451216838315743/>
- ◆ If you haven't already filled out the JOIN form please do. Find it as a drop down menu under "Get Involved" See <https://www.karoecho.net/join>
- ◆ A [follow-through novice primer](#) has been put on the website for new hams once they have bought their radio and want to learn more.
- ◆ A [dual-band antenna primer](#) for new hams who want to graduate from the rubber-ducky world
- ◆ Note that the Tram 1480 gain dual band antenna is currently still available for \$51 (no tax and free shipping) on ebay or from Home Depot. That and an inexpensive speaker tripod is a dynamite combination for portable operation. This antenna is equivalent to the Diamond X-200a antenna which sells at HRO for \$125.00 before taxes and shipping.
- ◆ For newbies, please visit <https://www.karoecho.net/workstreams/training> and read the study materials. It is all there except for hands-on experience. Ask questions!
- ◆ Following the Thursday evening net check-in, there is often a training session and/or discussion.
- ◆ All recent KARO ECHO [Minutes will be found at our Past Events page](#) We are now including past Executive Board Minutes as well. [Newsletters are on the Documents Page](#).

If you desire to be removed from this email list, please email info@karoecho.net

Other Resources

"ALERTWildfire" camera links in our area:

[William Rust Summit cam](#)

[Wildcat Canyon cam](#)

[Vollmer Peak cam](#)

[Nichol Knob cam](#)

[View real-time data from any weather station in the state.](#)

[Albany Radio Groups.io forum](#)

[Eastbay Resilience Groups.io forum](#)

[Marina Bay Neighbors and 1st Wed West county GMRS net](#)

Technical Committee: Maintenance/diagnostic tools

by Don NI6A, with editorial additions by Howdy KE6BEE

Basic diagnostic tools are an essential part of a radio communicator's kit

To maintain an effective set of cutlery, one needs to regularly apply a sharpening stone. Similarly, it is essential to maintain and verify effective operation of our radio equipment so that it is functional and efficient for use during a disaster.

Many KARO ECHO members became involved with ham radio because we want to help our families, neighbors, and community during a large disaster such as severe weather events or earthquakes when conventional sources of power and communications will be unavailable.

We invested money and time to get on the air and improve our skills. We all learn a lot as we get more involved, including that we need spare batteries and better antennas (an added, but not exorbitant, expense). It is also recommended that everyone have earphones, headsets, or speaker mics so that you can operate in noisy conditions. Such is a must in shelters at night when people are sleeping.

The expense of additional maintenance/diagnostic tools on top of radio/antenna gear may be discouraging, but these tools are essential to assuring reliable operation and need not be highly costly. It is ideal for operators to learn to be self-sufficient for basic troubleshooting and the KARO ECHO technical committee is committed to helping members maintain gear in a high state of readiness and teach new skills.

The Volt Ohm Meter (VOM) or Digital Multi-Meter (DMM)

The most basic (and versatile) electrical measurement tool, typically measures at least two of the three fundamental electrical parameters: voltage (Volts), resistance (Ohms), and current (Amps). Traditionally analog needle meters, digital readout multi-meters are most common today.

These meters will measure the direct current (DC) voltage measurements associated with batteries that power your radio, as well as alternating current (AC) voltages associated with household outlets. Resistance measurements (Ohms) can be used to determine continuity, breakage, or resistance of any conductor in a circuit.

There is a wide range of digital multimeter quality and functionality (some include additional parameters of capacitance, inductance, temperature, etc). The least expensive meters [start around \\$7](#), but the better basic meters are [more like \\$12](#). Consult with a KARO ECHO Elmer for more details.



Technical Committee: Maintenance/diagnostic tools *(continued)*

The Standing Wave Ratio (SWR) and RF power meter

The SWR meter is considered an essential tool, because for good, reliable communication you want the RF power leaving your radio to be efficiently coupled out of the antenna to the air, rather than reflected by the transmission line and antenna back toward the radio where, at best, the reflected energy will fail to help you communicate and possibly trigger the radio to reduce transmission power, because of the mismatch, for even less effective useful radiation. Or, at worst, potentially damage the radio.

A high SWR (2 to 1 ratio or higher) indicates that your antenna may be out of tune and needs adjustment. This may be due to many causes, including: defective patch cords, coax, coax connectors, water in the line, water in the antenna, or damage to the antenna. Needless to say, if the connector, cable, or antenna is broken your signal will not be heard well, you will not hear others well, and your radio may burn out. One day your SWR may be perfect (the perfect ratio is 1.0 to 1 or as is said one to one). However, on a future day due to mechanical stressors, wind, UV light, or moisture your SWR might interfere with your ability to communicate in a disaster. Especially vulnerable are rubber duck antennas that have experience rough handling, or any parts of the system (coax/ antenna) left out in the weather for long periods of time.

Most SWR meters also measure the RF power output from the radio which can be useful to confirm proper operation of the radio and what the actual output is under different power settings in the radio (high, medium, low). For the most accurate power measurement results you will also need a dummy load (see next section).



Caution: when buying a SWR meter be sure it covers the frequency range that you desire. An SWR meter for HF (1.8 MHz to 55 MHz) will give you bizarre results on VHF and UHF. Most of us want an SWR meter that will be accurate at 144 MHz to 470 MHz). Also SWR meters are rated at maximum power. Some of us may be using 5 watt rigs while others 100 watt rigs. Most SWR meters introduce small insertion losses, less than .3 dB and can be kept in-line at all times. Accuracy varies between 10% to less than 3%. Example meters are linked below, but consult with a KARO ECHO Elmer for more details before purchasing.

[Single needle analog \\$45](#)

[Digital SWR/power meter \\$55](#)

[Cross-needle analog \\$70](#)



Technical Committee: Maintenance/diagnostic tools *(continued)*

The Dummy Load

The SWR should be one to one with a perfectly matched (tuned) antenna. However, since antennas rarely provide perfect one to one matches (and the SWR will vary depending on the portion of the band you are using), a purely resistive load is a very useful stand-in for the antenna (affectionately named a “dummy load”) to achieve a more accurate test, particularly for RF power output from a radio.

In short, a power/SWR meter placed in-line between a radio and dummy load should accurately display the radio’s power output at any given frequency, without interfering with other stations when you transmit, because the dummy load does not function as a good antenna (it doesn’t radiate well to the air, but rather dissipates the RF energy as heat).

In addition to checking radio power output, a dummy load is also useful to check transmission cable losses (attenuation), and hence defective cabling and connectors. By measuring the power/SWR with the meter between the radio and transmission line (with the dummy load at the other end), as well as with the meter between the transmission line and the dummy load, it is possible to measure how much power is dissipated in the transmission line. Any unusual reflections of power from the transmission line would also be revealed.

Dummy loads should be sized according to your planned maximum output power during the test (20 watts, 50 watts, or even higher). Although a purely resistive 50 Ohm dummy load should not be frequency dependent, some are. Consult with a KARO ECHO Elmer for more details.

[25W dummy load \\$19](#)

[60W dummy load \\$28](#)

KARO ECHO is here to help

If you do not have the funds, space, ability, or inclination to own your own troubleshooting tools. Ask your Elmer, and the KARO ECHO Technical Committee will be happy to provide this service to members.



KARO ECHO Classifieds

We are soliciting classified ads from KARO ECHO members, and friends, to facilitate gifting, swapping, selling radio gear and/or offering help/services such as loans of special equipment/tools, etc. Please send any content to the newsletter editor, Howdy ke6bee@arrl.net

ARRL license plate frame

\$2 for full KARO ECHO members

\$4 for associate members

Proceeds go to KARO ECHO



Free Elmer support for KARO ECHO by Don NI6A. Phone, email and home consultations regarding antennas, SWR, assembly of coax and Anderson power pole connectors, lending of special test equipment, etc. Contact: elmer@karoecho.net for "free advice"

Loaner radios/antennas/meters available for trial/testing, including:

HTs: Baofeng UV5R, UV-82HP, UV82x3 (triband), TYT UV8000E, Alinco DJ-580T, Motorola T200TP (FRS)

mobile: Baofeng UV-25x4, Kenwood TK-880 (GMRS/440), Kenwood TM-741A, Alinco DR-235TmkIII (220)

digital mode: Alinco DJ-MD5TGP (DMR), Baofeng DM-1701 (DMR), **2.4 and 5.8 GHz mesh network nodes**

digital interfaces: [Signalink](#), [Mobilinkd](#), [TNC-Pi](#)

meters: Surecom SW-102 digital SWR/power meter

Contact: Howdy ke6bee@arrl.net